Creation Matters

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The Making of Muddy Beds

by Zachary Klein

The Puzzle of Mud Rocks

One of the many challenges facing creation geologists is the immense amount of time that is supposedly represented within the Earth's sedimentary rock record. While some sedimentary rocks are known to originate from high-energy processes, such as conglomerates and many sandstones, others, such as limestone and shale, are said to require long periods of relatively low-energy conditions in order for them to accumulate. These rock types are estimated to form as much as 75% of the Earth's sedimentary rocks. For a Flood model to be viable, many of these rock layers (classified as "mud rocks" due to their extremely small particle sizes, less than 0.0025 inches) must have been deposited in catastrophic conditions.

One argument made by creation geologists in favor of high-energy deposition of these mud rocks relies on the arrangement of fossil material found within the strata. Fossils are often plentiful in these rocks, and while paleontologists regularly analyze fossil content to gather information about the ecology and depositional environment of a given rock unit, sometimes the spatial arrangement of these fossil remains—which can also provide clues as to how the animals died and were buried—are overlooked.

Mass Kill in the Grand Canyon

A famous example of this type of argument was made by creation geologist Dr. Steven Austin. Dr. Austin has spent decades studying the formation of the Grand Canyon in Arizona, documenting numerous lines of evidence in support of a catastrophic Flood/Post-Flood origin for the regional strata and the carving of canyon itself. One of his most notable discoveries was the presence of as much as a billion orthocone (straight-cone shelled) nautiloid fossils in a particular layer within the Redwall Limestone (Austin, 2003). This "nautiloid bed" (named the Whitmore Nautiloid Bed, after the Whitmore Wash Member wherein it is found) has been traced as far as Las Vegas, NV—a span over 180 miles. While the mere discovery of this dense "mass kill" deposit is notable, Dr. Austin also documented that these large animals had a particular distribution *within* the Whitmore Nautiloid Bed.

Figure 1. The nautiloid *Rayonnoceras*. Austin, 2003 (Figure 8b).

Two key features of the WNB stand out: First, there is a statistically significant non-random orientation of these long, conical shelled fossils, indicating that the

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Figure 2. Whitmore Nautiloid Bed within the Redwall Limestone in the Grand Canyon (behind man in foreground). Austin, 2003 (Figure 3).

Math Matters

Hummingbirds by the Numbers

by Don DeYoung, PhD

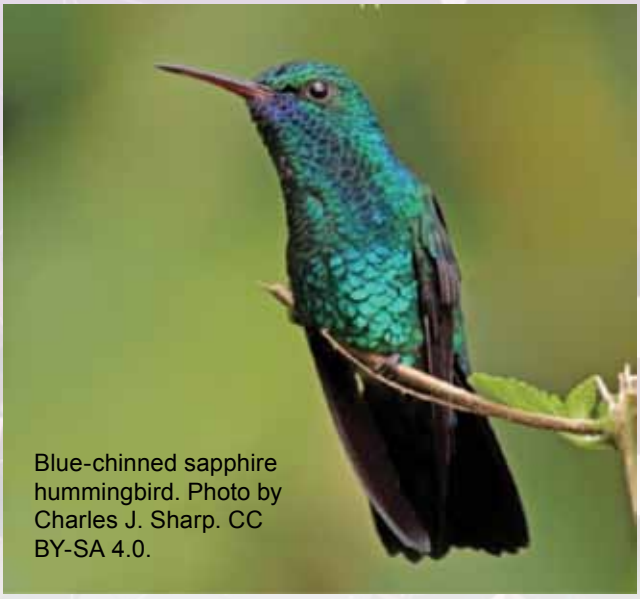
Hummingbirds demonstrate astonishing behavior and design. The following general description is compiled from more than 350 known species of these small, energetic creatures.

Physical Nature

Their typical mass is 3-4 grams—less than a nickel (5 grams, 0.18 ounce). The smallest is the bee hummingbird of Cuba at 2.6 g and 2" long. Female hummingbirds lay 2 eggs the size of coffee beans, and they produce 1-3 broods each year. The females alone care for nest building, incubation, and feeding the newborn chicks. Hummingbird range is limited to the Western Hemisphere with Arizona, Costa Rica, and Ecuador hosting the greatest diversity.

Hummingbirds lead an intense, active life with high metabolism. Their heart pulse averages 250 beats/minute when resting and reaching 1260 beats/min in flight. Respiration is 150 breaths/minute and body temperature is 105-108°F. To fuel this energy consumption, feeding hummingbirds take in more than twice their body weight each day in the form of flying insects and flower nectar. The tongue does not act as a straw as commonly thought, but instead laps nectar droplets similar to the way a cat takes in milk.

Hummingbirds have about 900 feathers, many of them iridescent. The feather colors are not due to pigments but instead result from micron-size ridges which produce distinct colors by the interference of light waves. The complex optics was first studied by British scientist Robert Cook in 1665. He dipped feathers in water and observed that iridescence was diminished when the ridges were altered.



Blue-chinned sapphire hummingbird. Photo by Charles J. Sharp. CC BY-SA 4.0.

The legs of hummingbird are not designed for walking or hopping, but instead are suitable for clinging to a branch. When fatigued, hummingbirds may assume a hibernation-like state called torpor. During this time their breathing, heart rate, and temperature all diminish. Sleeping hummingbirds have been observed suspended upside down, their feet having slipped around a branch while remaining securely attached.

Flight

Hummingbirds have the unique ability to fly vertically, backward, sideways, and upside down, all at high speed. Our family enjoys their summer acrobatics with wonder at how they avoid collisions. Their wings move at a blurring 50 beats/second,

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Research Matters

Summaries of Cutting-Edge Research from the *Creation Research Society Quarterly*

Summaries by Andrea Reitan

The Belt Supergroup

The Belt Supergroup is one of the thickest sections of Precambrian sediments in the world. Precambrian layers are often considered pre-Flood rocks by creationists. However, there is evidence that the Belt Supergroup was probably emplaced very early during the Genesis Flood.

In the Summer 2024 issue of the *CRSQ*, Oard presents his reasons for why the Belt Supergroup may be considered a section laid down by the Flood. First, he identifies its location in western Montana, northern and central Idaho, northeast Washington, and across the border into Canada. Then he defines what a supergroup is, lists some of the unusual features, and explains the groups and rock types that make up the Belt Supergroup. He then lists some secular explanations for the origin of the Belt Basin, where the supergroup is located. These include an asteroid impact, a rift zone, deposition in either a lake or marine environment, and sheet floods.

Then Oard explains that the Belt Basin has been subdivided into the main Belt basin in the north and the Lemhi sub-basin in east-central Idaho and southern Montana. He describes the sediments as colourful, often with alternating red and green minerals. There are few volcanic tuff layers in the supergroup, but there are some mafic dikes and sills that intruded into the lower Belt group after the sediments were deposited. There was little folding and faulting of the supergroup until after its deposition. The uniformitarian dates for the supergroup are then discussed, emphasizing some of the problems that secular scientists cannot adequately explain.

In the next few sections, Oard describes some of the unusual features found in the Belt Supergroup. These include what are generally known as molar tooth structures, mud cracks, and stromatolites. Molar tooth structures are networks of calcite sheets or ribbons that are variably weathered, producing something that looks similar to an elephant's molar tooth. Structures often interpreted as mud cracks are more likely to be syneresis cracks, which form underwater as water escapes from below when sediments are compacted. The stromatolites of the Belt Supergroup may not be of biological origin. Some of them transition from a domed shape to a flat lamination identical to sedimentological laminations, and some are in dolomite, which only forms in hot water.

Oard then mentions the difficulties in correlating strata across the Belt Basin due to changes in the appearance and characteristics of the layers over distance and differences in nomenclature from one locality to another. Next, he discusses the mystery of where the sediments came from. This is a mystery because paleocurrents flowed mainly from the west, but the source continent is no longer there. Secular scientists have no consensus on where the source continent may now be located. Another conundrum Oard addresses is the thick dolomite in the Belt Supergroup. As mentioned earlier, dolomite only forms in hot water (>100°C), whether it is directly precipitated as dolomite or is a product of the replacement of calcium with magnesium in a secondary process.

To place the Belt Supergroup on a biblical timeline, Oard mentions that many creationists place its deposition either during Creation Week or between Creation Week and the Flood, but he thinks it is more likely to have been deposited early in the Flood. His reasoning for this is that the Flathead Sandstone lies conformably on top of it (i.e., there is a flat contact between the layers with no erosion). More research is required to test this hypothesis and help us better understand the catastrophic processes of the early Flood.

Reference

Oard, M.J. 2024. The Belt Supergroup Is Likely from the Early Flood: Evidence for Precambrian Sedimentary Rocks from the Flood. *CRSQ* 61(1): 16-31.

Has God Said?

Many people have questions about the world: Where did the universe come from? Why is there death and suffering and evil? Is there hope for the future? The answers to these questions can be found in Genesis 1-11. Genesis 1:1-2:3, which describes God's creation of the universe and everything in it, is the foundational cornerstone to the rest of the Bible. How one understands the creation account in Genesis depends on how one views both the origin and structure of the universe.

In the Summer 2024 issue of the *CRSQ*, Harbin dives into this topic to show that the original creation event was miraculous. He begins by contrasting two main worldviews: naturalism and spiritualism. Naturalism takes the view that matter is all that exists, it all operates according to natural laws, and the idea of a Creator is either ignored or thrown out entirely. Everything works by cause and effect. However, naturalism can only go so far. Eventually, a cause that exists outside of the physical universe must be allowed. Alternatively, spiritualism holds that there is a spiritual realm beyond the physical. There are also only two choices for the origin of the universe, whether one believes in God or not: either it has always existed, or it came into existence at some time in the past. Both of these create difficulties for naturalism.

Harbin then defines three labels used to describe how people understand God's

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Beds

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animals were buried within a moving current of sediments (rather than randomly dispersed over the sea-floor in calm or weak-current conditions). Second, the large nautiloid fossils (together with other larger fossil debris, such as coral heads) are consistently found along the center of the 6'-thick limestone bed, rather than throughout its thickness from bottom to top. This is unusual, as typically sediments are deposited with coarse material at the bottom of the bed, with progressively finer material deposited as you move up through the layer (this is described by geologists as **normal grading**). In some high-energy deposits (such as volcanic pyroclastic flows), this pattern is reversed, with finer sediments at the base of the bed and coarser material at the top (known as **inverse grading**). The WNB is unusual in that its bottom half appears inversely graded, and the top half normally graded. The coarser bioclastic material (including the larger fossils, such as nautiloids) appears "suspended" half-way up the bed.

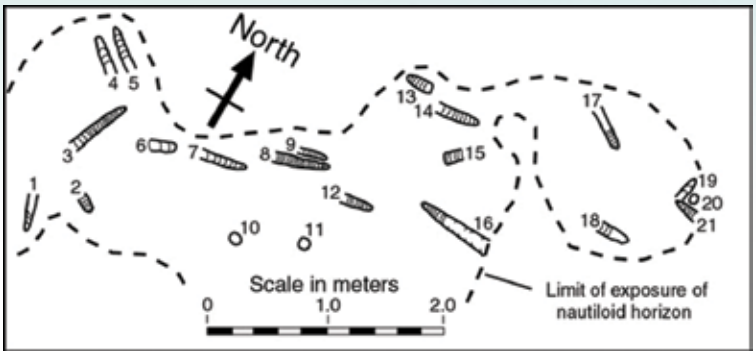

Figure 3. Plot of nautiloid fossil orientations in the Whitmore Nautiloid Bed. Austin, 2003 (Figure 11).

Dr. Austin determined that this combination of features (including others, such as occasional nautiloid fossils buried in a *vertical* orientation) is best explained by a unique high-energy process known as a hyperconcentrated gravity flow. The preferential orientation of fossils indicates that this population was caught up in a powerful underwater mud flow, which overpowered them (nautiloids are believed to have been quite capable swimmers) and swept them hundreds of miles away from their original location, likely burying them alive. The peculiar bedding of the layer resulted from the fact that this flow occurred in deep water, with higher density in the bottom of the flow (riding along the seafloor) as well as the top of the flow (beneath the water column). This combination of pressures results in larger objects (such as the nautiloids) rotationally migrating to the vertical center of the flow.

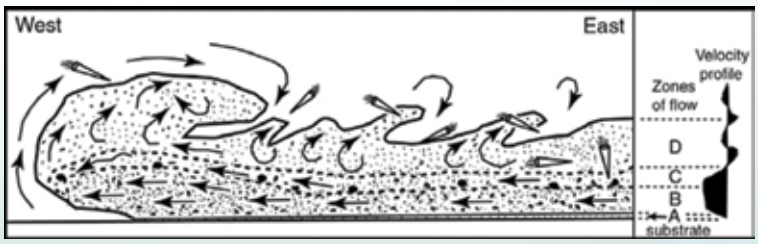

Figure 4. Flow model of a hyperconcetrated flow. Austin, 2003 (Figure 14).

Dr. Austin's research on the Whitmore Nautiloid Bed is one line of evidence, among several that have emerged in recent decades, which calls into question the conventional wisdom that mud rocks (such as limestone) require low-energy conditions over millions of years. Of course, in order for the creationist model to be viable for the entirety of the sedimentary rock record, the case must be made that most, if not all, mud rocks were deposited rapidly, at least within the last 6,000 years (if not the year-long Genesis Flood). Are there similar nautiloid beds to be found elsewhere in the geologic record that could help validate this model for rapid mud rock deposition?

The Kimmswick Nautiloid Bed

One possible instance has been observed in the Ordovician Kimmswick Limestone in northeastern Missouri, about 50 miles south of St Louis (Klein, 2023). Here we can observe a particular layer of limestone with a relatively high-density of orthocone nautiloid fossils, displaying many similar features to what has been seen in the Grand Canyon. The "Kimmswick Nautiloid Bed", it should be noted, is not geographically or stratigraphically related to the Mississippian Whitmore Nautiloid Bed, nor is it nearly as large. However, the fossils do display preferential orientation, at least in local outcrops, suggesting that strong currents were at play in their burial, not low-energy conditions. And like the WNB, the large nautiloid fossils, as well as other fossil material, are distributed primarily in the halfway zone across the bed's thickness. These features suggest that, like the WNB, the Kimmswick Nautiloid Bed has its origins in a catastrophic underwater mudflow, though at a smaller scale.

Figure 5. Outcrop map of Kimmswick Nautiloid Bed, showing nautiloid fossil orientations. Klein, 2023.

Additionally, while the Kimmswick Nautiloid Bed is unique in its concentration of fossil nautiloids, it is actually the first of a sequence of about 6-7 identical beds that make

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Figure 6. Orthocone nautiloid fossil within the Kimmswick Nautiloid Bed. Klein, 2023.

Figure 8. Regional map showing the study locations of the KNB. The Frankford site is approximately 110 miles Northwest of the original outcrop. Klein, 2023.

up the base member of the Kimmswick Limestone. Each of these beds displays almost identical characteristics (with the exception of the nautiloid fossils). If the lowermost bed (KNB) was deposited through a high-energy flow event, it seems logical to conclude that the subsequent beds were also caused by repeated flows, perhaps as "pulses" of sediment that were triggered by regional tectonic and seismic activity. Intriguingly, the KNB can be traced quite easily due to the presence of a distinctive clay-layer that underlies the bed, known as the House Springs K-Bentonite. This shaley clay was produced by one of several massive outpourings of ash from much further to the east, indicating the catastrophic volcanic activity was also active at the time that these deposits were formed.

The Kimmswick Nautiloid Bed may in fact be much larger than its type outcrops indicate. Preliminary investigation has identified another possible outcrop over 100 miles to the north, where a distinctive nautiloid bed of Kimmswick Limestone has been observed overlying a distinctive layer of clay. The nautiloid fossils at this northern location also display preferential orientation, indicating that they too were likely buried in catastrophic circumstances.

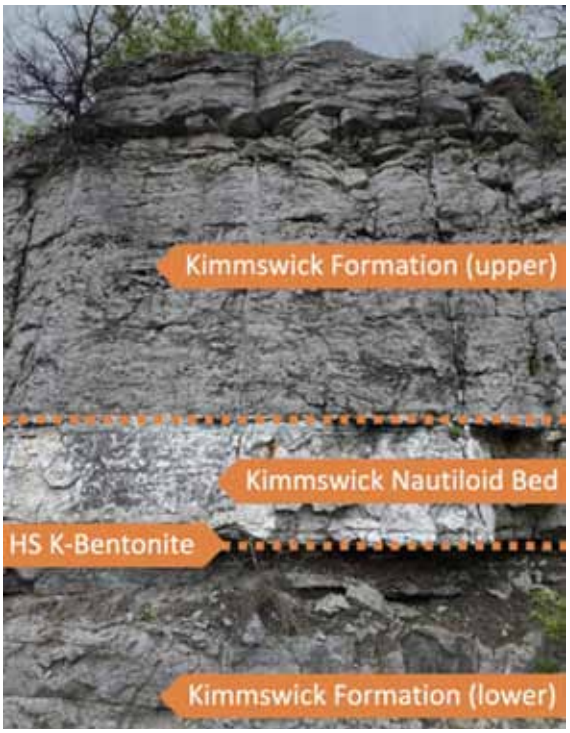

Figure 7. Stratigraphy of the Lower Kimmswick Formation. Note the presence of the House Springs (HS) K-Bentonite immediately beneath the KNB. Klein, 2023.

Conclusion

While much more work needs to be done, these discoveries underscore the fruitfulness of Dr. Austin's model for the rapid deposition of limestone and other mud rocks, as well as the massive opportunities and need for creation geologists to apply lessons learned in the Grand Canyon and other famous localities to the rocks and fossils in our own backyards. Despite incredible advancements over the past six decades since John Whitcomb and Henry Morris published The Genesis Flood, the creation model for geology is still very much in its infancy and will likely never be truly "complete" this side of the New Creation. As creationists, we must regard our work as an "infinite game" of discovery, wonder, and worship. We are attempting to comprehend the works of God as revealed in Scripture, through the things he has made and reshaped. It is our privilege, as bearers of the Creator's Image and as the redeemed sons and daughters of the King, to glorify Him through this work of exploration.

It is the glory of God to conceal a matter, But the glory of kings is to search out a matter. Proverbs 25:2

References

Austin, Steven A. (2003) "Nautiloid Mass Kill and Burial Event, Redwall Limestone (Lower Mississippian), Grand Canyon Region, Arizona and Nevada," Proceedings of the International Conference on Creationism: Vol. 5, Article 10.

Klein, Zachary Aaron. (2023) "Orthocone Cephalopods as Paleocurrent Indicators in the Ordovician Kimmswick Formation of Northeastern Missouri," Proceedings of the International Conference on Creationism: Vol. 9, Article 79.

Infinite Game Thinking: A New Approach to Creationism with Dr. Marcus Ross. youtube.com/watch?v=-m_bgbpislE&t=8s

Hummingbird

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resulting in a buzzing or humming sound which gives the bird its name. Hummingbirds also produce a chattering noise, either vocally or by flicking the tail. Flight muscles comprise 25-30% of hummingbird weight, twice that of other birds. Their average flight speed is 25-30 miles/hour, reaching 50 mph in courtship dives.

Migration

Midwest ruby-throated hummingbirds disappear in mid-September, coinciding with the fall equinox and shortening daylight. Before migrating, hummingbirds may double their weight in stored fat for flight energy. Rufous hummingbirds fly south from Alaska and Canada to southern Mexico, traveling nearly 4,000 miles over two weeks, including rest stops. With annual round-trip migration and a lifetime of 3-5 years, many hummingbirds accumulate more miles than the earth's entire circumference (24,900 miles). One special challenge is the optional migration route directly across the Gulf of Mexico—500 nonstop miles (845 km) with 20 hours in the air.

Conclusion

Further hummingbird distinctives include their advanced sight, hearing, and long-distance navigation ability. Jeremiah 8:7 refers to the migration of several bird species other than hummingbirds. This verse declares that animals are ahead of mankind in carrying out God's intentions for creation. Job 12:7 further challenges us to ask (study) the birds of the air, and they will tell us of God's plan and purpose for this world.

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relationship with His creation:

1. Theism is the view that God is both transcendent (i.e., He is outside of time and space) and immanent (i.e., He can and does intervene in the space-time continuum).
2. Pantheism views God as immanent but not transcendent, essentially equating God and the cosmos and treating natural laws as acts of God.
3. Deism is the view that God is transcendent but not immanent and, therefore, either cannot or does not intervene in space-time.

These three views create a spectrum with pantheism at one end and deism at the other. Christianity has historically been defined as a theistic faith and falls in the middle.

After a brief look at Psalms 104 and 147 to see how God works in relationship with His creation, Harbin defines two main categories of miracles. "Class A" miracles are those events that violate laws of nature, such as when Elijah called down fire from heaven (1 Kings 18:20-40), and "Class B" miracles are those where God uses a natural process, such as when Elijah prayed that it would rain (1 Kings 18:41-45).

Returning to the creation account in Genesis, Harbin states that miracles may not have been necessary before the Fall, with humans ruling the physical realm in direct communion with God. However, after the Fall, miracles may have been a reminder of God's existence as He occasionally used them to guide mankind in specific directions. Harbin then addresses how the literary structure of Genesis 1 is built upon the statement made in verse 1 and explains that God's first seven declarations serve as commands for something physical to either come into existence or produce something else that is physical. The eighth declaration expresses God's personal interest as Father, Son, and Holy Spirit in creating mankind, and the last two are commands given to Adam and Eve.

Because God is infinite, and because He can instantaneously create fully functioning, highly complex systems with a spoken word, a question is raised as to why creation is described as a six-day process. Harbin answers this by explaining how some aspects of creation are intended to serve as guidance in time-keeping. Specifically, a day is defined in Genesis 1:5, and the sun, moon, and stars serve to separate light from darkness and to keep track of time (Genesis 1:14). The six-day creation process followed by a day of rest is the basis for the seven-day week.

Harbin concludes by saying that Genesis 1:1-2:3 can best be described as the eyewitness testimony of the One who accom-

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Apply for a CRS Research Grant

The 2025 grant cycle began on January 1. Grants up to $5000 are available to CRS members for research that contributes to the creation/flood model. The submission deadline is March 31, 2025, with awards announced in May. Grants can cover equipment, supplies, travel to study site, and more.

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plished the acts recorded there. What we can learn from this testimony is that there is a Creator who created the universe and everything in it, He declared the finished product very good, and He gave mankind a heavy responsibility to serve God and man and to care for the Earth. Since humanity first failed in their responsibility, the serpent's challenge to God's Word has continued to echo, "Has God said…?" Let us not be deceived as Eve was.

Reference

Harbin, M.A. 2024. Has God Said? *CRSQ* 61(1): 4-5.

Simulation of the Pearson Method and the Spearman Method Coefficients

Many in the creation science community use statistical baraminology to determine different baramins or biblical created kinds. This methodology attempts to measure how closely related different taxa are by using a distance correlation equation. The assumption is that the more closely related two taxa are, the lower the distance measurement will be. Data from the secular phylogenetic literature is analyzed using statistical programs, and the results are presented in graphs. Two methods—the Pearson coefficient and the Spearman coefficient—have been used by baraminologists in their analyses. However, the test of the accuracy of any method should be to test it against simulated data where the correct answer is known.

In the Fall 2024 issue of *CRSQ*, Sanders tests both the Pearson and Spearman methods against simulated data in order to evaluate the reliability of these methods and whether one is more reliable than the other. While patterns of characters in data may show similarities from one group to another, the similarities may be a result of either ancestry or chance. Baraminologists want to find patterns based on ancestry.

Sanders defines two important terms: strength of pattern and noise. A stronger pattern means more matching characters were introduced in the data. Other characters were randomly varied. To test which statistical program works best, it is assumed that similar characters correlate with related taxa, and then the strength of the pattern is changed. Noise is when a correlation is found that does not exist (false positive) or when an existing correlation is not found (false negative). Both of these scenarios are considered failed tests in this study because the correct answer is already known.

A problem was found with the Spearman method in that it always found patterns, even when presented with completely random data. It correctly identified patterns without noise, false positives or negatives, or missing connections only five times out of 520 tests. The passed tests only used ten taxa and a small number of characters. The more taxa and characters there were in the data, the more noise it produced. Even though it always found patterns, the Spearman method failed to distinguish the correct pattern from the noise, even when pattern strength was 100%. It also sometimes found groups that did not exist in the data or included outgroups as part of existing groups.

On the other hand, the Pearson method performed better, finding the correct pattern 123 times out of 520 tests and correctly finding no pattern in 15 out of 20 tests, but a character-to-taxa ratio at or below 2:1 also began to present noise. Given these contrasting success rates, Sanders suggests only using the Spearman method on small datasets, if it must be used at all, because its results are likely to be inaccurate. He mentions that the Pearson method has been criticized and may require a replacement (which is why the Spearman method was introduced), but it is clearly the more accurate of the two. Therefore, he recommends that statistical baraminologists use the Pearson method.

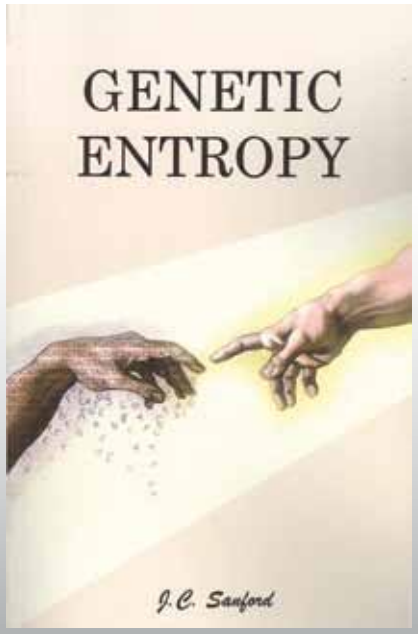
Reference

Sanders, H.F. 2024. Simulation of the Pearson Method and the Spearman Method Coefficients in Morphology-Based Baraminological Research. *CRSQ* 61(2): 101-111.

Available in the CRS bookstore

Genetic Entropy

J. C. Sanford



This classic staple of creation biology points out the limits of the primary axiom of evolution—that mutation and natural selection can produce all the variety of living things today from a universal common ancestor. Using modern scientific publications, former Cornell University professor Dr. John Sanford shows clearly that natural selection cannot even remove the harmful mutations that are occurring all the time. All organisms are degrading over time towards catastrophic information loss due to the accumulation of slightly deleterious mutations that natural selection cannot act upon. This concept of genetic entropy is central to creation biology. This book is a must-read for anyone interested in understanding the creation paradigm. This edition contains several updates and a whole new chapter.

FMS Publications. 2014. 270 pages.

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Praise: Thank you for all your prayers and financial support!

Prayer: We are working and praying to reach 2,000 members in 2025. Please pray with us for the growth of the CRS.

Please pray for the on-going research projects of the society. This includes the special CRS research projects of i-DINO and e-KINDS as well as the research sponsored by CRS research grants. Pray for clearness of mind to find truth and that the research will glorify God.

Thanks Again!

Call for Abstracts

The Creation Research Society is now accepting abstracts for the 2025 CRS Conference. The conference will be held July 24-26 at Missouri Baptist University in St. Louis, MO. Submitted abstracts should cover the research methods and major results of the project as well as the significance of the research to creation science. All authors should be listed, with the presenting author indicated. Each abstract also requires a sponsor who is a voting member of the CRS. This sponsor can be an author or non-author sponsor. Abstracts must be submitted by April 15, 2025. All abstracts should be submitted online through the form at creationresearch.org/conference-abstracts.

Registration for this year's CRS Conference is also open. To register, visit creationresearch.org/conferences/2025.